National Aeronautics and Space Administration

Space Launch System
Highlights

May 2012

Flight Computer Testbed Received at Marshall

The SLS avionics team can begin fine-tuning flight software for the new heavy-lift launch vehicle, using software testbed computers that were delivered ahead of schedule by Boeing. Availability of the platform this early in the engineering development phase allows more time for NASA programmers to develop the most capable flight software in the history of spaceflight. Existing systems are being upgraded from Global Positioning System (GPS) and communication satellites to develop a flight avionics computer with the highest processing capability available for the SLS rocket.

SLS avionics software will be integrated by data systems engineers Ken King, Yvette Binford, and Paul Doyle (left to right). *Photo credit: NASA/MSFC*

SLS Featured at "NASA Day in Alabama"

SLS exhibits were prominently displayed in Montgomery when Governor Robert Bentley signed a proclamation into law designating May 3 as "NASA Day in Alabama." The proclamation commended Marshall Space Flight Center (MSFC) for its role in space exploration, as an engine of economic development, and as the anchor of the aerospace industry in North Alabama.

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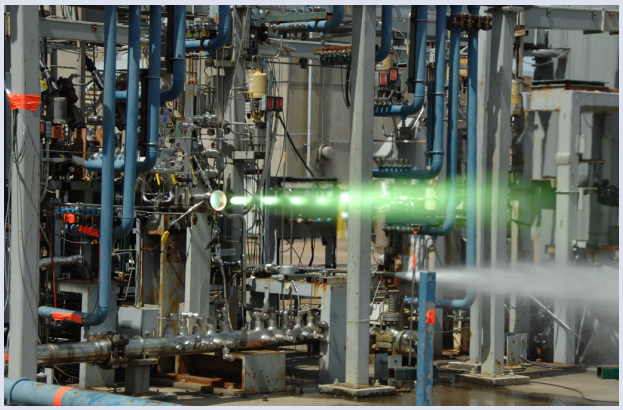
Scale Model Acoustic Testing for SLS Environments

The SLS Program is conducting subscale testing to determine effects from core stage engine plume-generated environments. A single thruster – similar to vintage hardware originally designed in the 1960's and tested during the Space Shuttle program – successfully met all test objectives during Phase I scale model acoustic testing from May 7–11 at Marshall Test Stand 115. This small propulsive device will represent the RS-25 engine during future scale model acoustic tests for the SLS rocket. Fabrication will now begin for a four-thruster cluster to be tested this summer, which will help determine pad environments, as well as SLS acoustic and lift-off environments.



This single thruster successfully completed scale model acoustic testing at Marshall Test Stand 115. *Photo credit: NASA/MSFC*

NASA Day in Alabama

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Marshall is the third largest employer in Huntsville, with a $2.9 billion economic impact on the state's economy, according to a 2009 study. In 2011, the center did about $817 million in business with Alabama companies, including 22 percent with small businesses.

Gene Goldman, Marshall's acting director, addressed a joint session of the Alabama Legislature alongside a scale model of the SLS rocket. *Photo credit: NASA/MSFC*

SLS Managers Honored with NASA Space Flight Awareness Awards

NASA's Space Flight Awareness program presented awards to six SLS managers, including Jerry Cook, SLS associate program manager; Earl Pendley, SLS Procurement manager; Bill Greene, SLS Engines associate manager; John Honeycutt, SLS Stages deputy manager; David Beaman, SLS Spacecraft and Payload Integration manager; and Jolene Martin, SLS Ground Operations Liaison resident manager at Kennedy Space Center (KSC). They were honored at a ceremony held on May 8 at the U.S. Space and Rocket Center's Education Training Facility in Huntsville.

SRR/SDR Step 2 Kick-Off: *Turning Plans into Progress*

On May 17, the SLS System Requirements Review/ System Definition Review (SRR/SDR) Board was reconvened by Todd May, program manager. Members included representatives from Marshall's Engineering Directorate and Safety and Mission Assurance organization, the Orion Program, and the Ground Systems Development and Operations Program. As an internal "health check," May gave a status of work done since SRR/SDR step 1 concluded on March 29.

On May 22, step 2 officially kicked off for these major life-cycle reviews, with members of the Standing Review Board (SRB) and other partners in attendance. Led by Leroy Cain, NASA engineer and former Space Shuttle flight director, the SRB provides an independent assessment of SLS design and development plans and progress against NASA's goals and objectives.

Agenda items included topics ranging from an independent cost assessment to specific product updates for step 2, which links the technical design solution with its associated cost and schedule. After product evaluations and a series of briefings, the process will culminate in an Agency Program Management Council meeting in the summer timeframe.

Successful completion of the SRR/SDR criteria brings the program one step closer to finishing the formulation phase and entering its implementation phase in NASA's program life cycle. The next major milestone — the Preliminary Design Review — is slated for 2013.

The SRR/SDR kick-off meeting gets underway with Todd May, SLS program manager; Leroy Cain, SRB chair; Garry Lyles, SLS chief engineer; and Don Noah, SRB member (at conference table, left to right). Also shown is Steve Gentz, NASA Engineering and Safety Center chief engineer (in background, left). *Photo credit: NASA/MSFC*

J-2X Upper Stage Engine: *Coming In First*

Fresh records are being set as testing continues for the next-generation J-2X rocket engine. Last year, development engine E10001 was put through an initial round of sea-level tests at Test Stand A-2 at Stennis Space Center (SSC). E10001 achieved full power during its fourth test firing (100 percent) and full duration during its eighth test firing (500 sec.), the first large U.S. rocket engine to achieve these milestones in so few tests.

After its first test series was complete, the engine was removed from A-2 to let NASA make preparations for another round of testing. Now it's back in the test stand, being put through its paces at simulated altitudes up to 50,000 feet to characterize nozzle and system performance at elevated altitudes and demonstrate the engine's operation across its throttle range.

On May 25, another first occurred when E10001 was fired in both its secondary and primary modes of operation for the first time. Critical test data were recorded that will help facilitate development of an engine being built to power the SLS upper stage, which will help carry humans deep into outer space for the first time.

On May 25, J-2X development engine E10001 was fired in both its secondary and primary modes of operation (total 40 sec.) for the first time. *Photo credit: NASA/SSC*

Todd May, program manager, shares his vision with the National Space Club's Florida Committee in Cocoa Beach, Fla. *Photo credit: NASA/KSC*

Milestones Discussed with National Space Club in Florida

On May 8, a capacity crowd attended a luncheon sponsored by the National Space Club–Florida, where SLS Program Manager Todd May delivered good news: NASA's new heavy-lift launch vehicle is on track for first flight in 2017.

May discussed NASA milestones, including a 2014 test flight carrying an Orion test article without a crew and full SLS missions that will carry Orion without a crew during a lunar fly-by in 2017 and with a crew during lunar orbit in 2021. Then the nation will be poised to explore as far as our imaginations will take us. "By that point, you'll have the capability to go anywhere in the solar system that people want to go," explained May. "And the ultimate goal is to put human boots on Mars."

SLS Outreach at Destination ImagiNation

The SLS Education and Public Outreach (EPO) team participated in the NASA exhibit at Destination ImagiNation's Global Finals held May 23 – 26 at the University of Tennessee in Knoxville. Destination ImagiNation is a non-profit organization that encourages student teams to solve open-ended challenges. The event was attended by over 15,000 people from 45 states in the U.S., 7 Canadian provinces, and 13 other countries.

Marshall education specialists participated in the event, providing hands-on education activities to engage and inspire the next generation of explorers. The SLS EPO team displayed a 1:100 SLS model and provided attendees with an SLS information sheet and several student activity sheets.

Students learn more about SLS at an event sponsored by Destination ImagiNation in Knoxville. *Credit: NASA/MSFC*

For more SLS news, updates and resources, visit www.nasa.gov/sls

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SLS Panels at International Conferences

SLS participated in the Global Space Exploration (GLEX) Conference, a first-of-its-kind international gathering to discuss the future of human space exploration. GLEX was co-sponsored by the International Astronautical Federation (IAF) and the American Institute of Aeronautics and Astronautics (AIAA) from May 22 – 24 in Washington, D.C. On May 23, moderator Donald Sauvageau (ATK) of AIAA's Space Transportation Committee was joined on a panel by five SLS executives – Todd May, program manager; Jody Singer, deputy program manager; Garry Lyles, chief engineer; Steve Creech, Strategic Development manager; and David Beaman, Spacecraft and Payload Integration manager – to discuss plans, progress, and capabilities for NASA's heavy-lift launch vehicle.

The 2012 International Space Development Conference (ISDC) opened with a keynote speech by NASA Administrator Charles Bolden. On May 25, two SLS executives – Todd May, program manager, and Garry Lyles, chief engineer – joined moderator Bill Hill, NASA's deputy associate administrator for Exploration Systems Development, on a panel to discuss the unsurpassed capabilities that the SLS rocket will offer future missions to deep space. A gathering of citizen space advocates, ISDC is the annual conference of the National Space Society (NSS). The event was hosted from May 24–28 in Washington, D.C.